



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,693	08/05/2003	Joseph F. Skovira	POU903100US1	7585
46369 7590 08/23/2007 HESLIN ROTHENBERG FARLEY & MESITI P.C. 5 COLUMBIA CIRCLE ALBANY, NY 12203			EXAMINER ZHE, MENG YAO	
			ART UNIT 2195	PAPER NUMBER
			MAIL DATE 08/23/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/634,693

Applicant(s)

SKOVIRA, JOSEPH F.

Examiner

MengYao Zhe

Art Unit

2109

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-10, 13-16, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-10, 13-16, and 19-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/15/2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-3, 6-10, 13-16, 19-20 are presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 8, 9, 10, 13, and 14 are rejected because they recite a "system"; however, it appears that the system would reasonably be interpreted by one of ordinary skill in the art as software, per se, failing to be tangibly embodied or include any recited hardware as part of the system <i.e. applicant should amend the system to include processor/computer.>.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-3, 6-10, 13-16, and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- A. The following claim languages are unclear and indefinite:

Art Unit: 2109

i) Claim 1, line 8, it is unclear what is meant by "one or more resources protected by shadow time" <i.e. how is the protection done? Is it that the resources are no longer available after shadow time expires? Or does the system reserve the resources during shadow time?>

Claims 8 and 15 have the same deficiencies as above.

ii) Claim 2, it is uncertain as to what "a complex scheduler" is <are there more than one scheduler in an overall scheduler, and complex scheduler is one of them? And what distinguishes it from a regular, generic scheduler?>

Claims 9 and 16 have the same deficiencies as above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 6-10, 13-16, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeBettencourt et al., Patent No. 6,279,001 (hereafter DeBettencourt) in view of Liu et al., Patent No. 5,031,089 (hereafter Liu).

8. As per claims 1, 8, and 15, DeBettencourt teaches the invention substantially as claimed including a method of balancing workload of a computing environment (abstract, lines 5-6), said method comprising:

obtaining, by a manager daemon of one system of a grid computing environment (Fig 1: the manager 110 corresponds to manager daemon; a host correspond to a system in the network, and the network corresponds to the grid computing environment.), scheduler information from a scheduler of another system of the grid computing environment (Column 10, lines 30-36; Column 13, lines 8-25), said scheduler information including job queue of waiting jobs for the another system (Column 13, lines 15-20), shadow time for the next waiting job of the another system indicating how long the job needs to wait for resources, and one or more resources protected by shadow time (Column 13, line 16: queue delay corresponds to shadow time);

performing by the manager daemon workload balancing of at least two systems of the grid computing environment, each system of the at least two systems comprising a scheduler to schedule workload on its system, said workload balancing using at least a portion of the obtained scheduler information (Column 13, lines 20-25)

9. Debettencourt does not teach scheduler information including current free nodes of the another system and wherein the workload balancing comprises backfill scheduling a job, said backfill scheduling allowing the job to run out of order as long as it does not affect the start time of another job scheduled to execute.

However, Liu teaches scheduler information including current free nodes of the another system (Column 9, lines 35-65) and wherein the workload balancing comprises backfill scheduling a job, said backfill scheduling allowing the job to run out of order as long as it does not affect the start time of another job scheduled to execute (Abstract: transferring task from a heavily loaded queue of a computer to another computer with a under-loaded queue corresponds to backfill scheduling).

10. It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention to modify the teachings of DeBettencourt with scheduler information including current free nodes of the another system and wherein the workload balancing comprises backfill scheduling a job, said backfill scheduling allowing the job to run out of order as long as it does not affect the start time of another job scheduled to execute, as taught by Liu, because it allows load distribution across multiple computers.

11. As per claims 2, 9, and 16, DeBettencourt teaches wherein scheduler on each system comprises a complex scheduler (Column 10, lines 30-36; Column 13, lines 8-25: the agent itself corresponds to a complex scheduler).

12. As per claims 3 and 10, DeBettencourt teaches wherein scheduler information is obtained from at least two schedulers, and wherein one scheduler of the at least two schedulers is a different scheduler from at least one other scheduler of the at least two

schedulers (Fig 1: each host has its own queue and scheduler maintained by the agent, which differs from agents of another host).

13. As per claims 6, 13, and 19, DeBettencourt teaches wherein the workload balancing includes determining which system of said at least two systems a job is to be assigned; and assigning the job to the determined system (Column 15, lines 40-55;, Column 16, lines 46-56).

14. As per claims 7, 14, and 20, Liu teaches wherein the workload balancing includes removing a job from one system of the at least two systems; and assigning the job to another system of the at least two systems (Abstract).

Response to Arguments

15. Applicant's argument filed on 6/15/2007 regarding to claims 1-3, 6-10, 13-16, 19-20 have been fully considered, but they are moot in view of the new ground of rejection.

Conclusion

16. Applicants' amendments necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2109

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MengYao Zhe whose telephone number is 571-272-6946. The examiner can normally be reached on Monday Through Friday, 10:00 - 8:00 EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached at 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Mengyao Zhe


MENG-AL T. AN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2109